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Social Determinants of Health Theory: Policy Entry Points for Healthcare Providers

A Thesis

Presented to
the Faculty of Arts and Humanities
University of Denver

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts

By

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June 2019

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ABSTRACT

This thesis examines a shifting paradigm in the U.S. healthcare system that will re-define the role that the healthcare provider plays in the production of health. It does this by first acknowledging two differing economic theories on the production of health: Human Capital Theory and Social Determinants of Health theory, and how both schools of thought have contributed to the paradigm that healthcare providers only play a role in the end stages of health production – to heal those who are already ill. However, policy, payment, and delivery system reforms have begun to force healthcare providers to re-think how they can meaningfully affect health outcomes through intervention in socioeconomic mechanisms. This thesis then provides a case study from within Centura Health to demonstrate how providers can meet critical social needs including food security, and concludes with some key policy recommendations that will further the paradigm for providers to play a greater role in the social determinants of health.

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INTRODUCTION

Health is a necessity of life. The World Health Organization (WHO) defines “Health” as the “state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”.¹ Public health and social service agencies have embraced this definition of health and have demonstrated organizational commitment to influence both the clinical and social factors that affect health outcomes.

In contrast, the healthcare delivery system in the United States has been organized and built according to the biomedical model, which asserts that the provider’s objective is to cure disease and that any cure to a disease can be attained via a combination of technological innovation and scientific knowledge.² U.S. medical schools have taught this biomedical paradigm exclusively throughout the 20th Century. The biomedical model focuses solely on the biologic factors of disease and does not consider disease to be caused by any social, emotional, or political influences. Therefore, generations of clinical providers have approached “health” from a biologic standpoint and subscribe to the paradigm that their role in producing health is by healing the sick. Similarly, the dominant

¹ "Constitution of WHO: Principles." World Health Organization. September 01, 2016.
<http://www.who.int/about/mission/en/>.

² Bodenheimer, Thomas, Kevin Grumbach. *Understanding Health Policy: A Clinical Approach*. Fifth ed. New York: McGraw-Hill Medical, 2009.

theory in health economics, referred to as health production theory, considers the provider's role as a healer of illness. Health production theory identifies the impact of medical care, behavioral choices, and socioeconomic status on health outcomes and relegates the role of the medical provider as a passive healer rather than that of a health promoter.

The provider and economic paradigm that views health and the provider's role in the production of health in the biological sense has shaped the care delivery system in the United States. Our healthcare system is by far the most expensive in the world yet fails to produce health outcomes on par with other developed nations. In 2015, U.S. healthcare expenditures were double those of other high-income nations, at \$9,535 per capita versus \$4,874 per capita.³ Despite high spending, our healthcare system consistently ranks worse than other industrialized countries on measures of quality, efficiency, access to care, equity, and health outcomes. This paradox has initiated a call to action to curb healthcare costs and improve efficiency and quality of the healthcare system in the United States.

In tandem with this call to action, a model has emerged that identifies social mechanisms that impact health outside of biologic factors and asserts that those social factors play a greater role at the margin in health outcomes than the consumption or provision of medical care. Finn Diderichsen et al. (2001), currently Professor Emeritus in the Department of Public Health at the University of Copenhagen, built this new framework identifying the social mechanisms that impact health and generate health

³ "Current Health Expenditure per Capita (current US\$)." GDP Growth (annual %) | Data. Accessed July 23, 2018.

<https://data.worldbank.org/indicator/SH.XPD.CHEX.PC.CD?contextual=aggregate&locations=US>.

inequities within and among social groups.⁴ In this social determinant of health model, the very existence of social groups leads to, exacerbates, and perpetuates negative health outcomes and health disparities. The interaction between social stratification, exposure to health risk, vulnerability to risk, and differential consequences of ill health causes disparities in health outcomes among social groups. Similar to the biomedical model and health production theory, the social determinants of health model identifies that the healthcare system's role is to intervene in that later mechanism, which is the consequences of ill health, and have little role to play to promote healthy outcomes in the earlier social stages of one's life.

However, the U.S. healthcare system is in the midst of a paradigm shift that will re-define "health" and overhaul the way that healthcare providers contribute to health outcomes. Policy, payment, and delivery reform have been shaped by calls to improve outcomes, patient experience, and to lower healthcare costs. As this paradigm emerges, a new question arises: given their place in the hierarchy of health as laid out in the Diderichsen et al (2001) social determinants of health model, is there a place for providers to intervene to affect the earlier social mechanisms in a meaningful way? This thesis will explore this question to identify the policy reforms that are beginning to re-define the provider's role in the social determinants of health, and will explore a case study on ways that a certain health system has responded.

⁴ Diderichsen, Finn, Timothy Evans, and Margaret Whitehead. "The Social Basis of Disparities in Health." In *Challenging Inequities in Health: From Ethics to Action*, 13-23. Cary, NC: Oxford University Press, 2001.

Thesis Overview

Chapter 1 provides an overview of the competing economic theories on how health is produced and their resulting implications for the role that healthcare providers play. In health economic theory, health is both produced and consumed on the individual level, and individuals demand healthcare services to improve their individual health stock. In contrast, social determinant of health theory claims that the wider social contexts leads to a social stratification that impacts the exposure and vulnerability to risk by social group. Those social groups then ultimately experience inequitable health outcomes along with different consequences of ill health. Social determinant of health theory is important as it gives specific policy entry points to disrupt the social mechanisms that cause poor health, including having the healthcare system intervene in the later social determinant of health mechanisms to alleviate differential consequences of ill health. In both of these theories, the healthcare system intervenes to provide clinical services to improve health but play little role in the wider social forces that individuals operate within. Social determinant of health theory has major implications for healthcare providers to help them determine the policy entry points and target populations to do more to promote health. The chapter concludes by identifying specific policy entry points to impact health outcomes and the ways that providers could incorporate them into their clinical delivery, and identifies food security as a key social determinant of health that providers can influence.

Chapter 2 reviews the changing healthcare paradigm that will re-define the role that providers play that is largely driven by the Institute for Healthcare Improvement's Triple Aim framework. The three tenets of the Triple Aim: Better Care, Better Quality, and Lower

Costs, have fueled the policy, payment, and delivery changes enacted to reform the healthcare system. Chapter 2 provides an overview of the most significant reforms that were enacted through the Affordable Care Act that give healthcare providers the “how” and “why” to address certain social determinants of health, thus expanding their role to intervene in the earlier vulnerability and risk mechanisms as laid out in the social determinant of health model. These key reforms include: Medicaid expansion, a new requirement for non-profit hospitals to conduct and publish a Community Health Needs Assessment, and the advent of Accountable Care Organizations.

Finally, Chapter 3 explores a case study in the state of Colorado to demonstrate the ways that policy, payment, and delivery reforms have impacted healthcare providers. Centura Health, the largest healthcare system in Colorado, has made incremental strides to intervene in some of the social mechanisms that impact health outcomes as a result of the Community Health Needs Assessment process. In particular, one hospital in the system implemented a Food as Medicine program to address a key social determinant of health (food security) in partnership with the hospital and the community. Thus, the chapter identifies that providers have already begun to intervene and re-define their role to have a greater impact on health outcomes through interventions targeted at the social determinant of health mechanisms. Finally, the chapter reviews some of the main challenges that providers have faced as they have started to get more involved in the social determinants of health to explore whether these policy changes have been sufficient to fundamentally alter the providers’ role in the social determinants of health.

CHAPTER 1: HEALTH, MEDICAL CARE, AND THE SOCIAL DETERMINANTS

Healthcare providers have rarely addressed or taken into account patient socioeconomic background within their clinical settings or care plans. In fact, the financial structure of the healthcare system rewards health systems when the population is unhealthy and demands more medical care. A predominantly volume-based reimbursement has led to the prevailing “heads in beds” business model for hospital providers, where hospitals strive to keep the hospital full and primary care practices strive to shorten appointment lengths to increase total patient visits. Volume-based reimbursement benefits providers if the population is unhealthy and therefore demand more of their services, which actually gives them a disincentive to improve population health or intervene in any of the social mechanisms that impact health. Plus, the predominance of the biomedical model and traditional health economic theory have perpetuated the paradigm that providers serve to cure illness and do not have a role to play in those social factors anyway.

This chapter explores two theories on health production. The traditional health economic theory asserts that health is produced and consumed by individuals, who choose how healthy they want to be based on individual preference. Social determinant of health theory, on the other hand, views “health” through a societal lens and argues that health outcomes are the result of accumulated social advantages or disadvantages across life. Social determinant of health theory provides specific policy entry points to disrupt the

social mechanisms that cause health inequities among social groups and also identifies the target populations for such interventions.

A Theoretical Background: Grossman's Human Capital Model

The dominant economic model of the demand for health and healthcare is derived from Michael Grossman's article "On the Concept of Health Capital and the Demand for Health" published in the Journal of Political Economy in 1972.⁵ This article was the first economic model to explore the demand for the commodity of "good health" and therefore the individual demand for healthcare services. Grossman's Human Capital theory largely places the role of the provider as a healer once individuals fall ill.

Grossman defines "health" as a durable capital stock that provides benefit through direct utility (i.e. we feel better when we are healthier) and through healthy time that can be invested in market (e.g. the production of goods and services via employment or starting a business) and non-market (e.g. leisure time) activities. Individuals are born with an initial stock of health that, like other capital goods, has a depreciation rate that accelerates over time and is affected by age, disease, accidents, or healthy behaviors. Individuals make investments in their health to increase their health stock, thereby increasing their utility. Therefore, the demand for good health is derived from the demand for individual utility, and the demand for healthcare services is derived from the demand for good health.

Grossman's Health Production Function can be summed up in the equation below:

$$H_t = H_{t-1} - \delta + I$$

⁵ Grossman, Michael. "On the Concept of Health Capital and the Demand for Health." Journal of Political Economy 80, no. 2 (1972): 223-55.

where H_t (the health stock at a given time period) is a function of the initial endowment of health stock (H_{t-1}), minus depreciation (∂), plus investment (I). The rate of health production depends on the efficiency of investment in health, which can be increased through higher levels of education or income. Death occurs when the stock of health falls below a critical level.

Positive investments in health include individual choices regarding healthcare consumption, diet, and exercise. The model asserts that individuals can choose how healthy to be and by extension, how long their life will be through those investments. Investments in health are subject to production and resource constraints in the form of time and wages. An investment in *human capital* through higher education can increase the efficiency of investments in health.

Implications of Grossman's Model for Providers

According to the model, health is a function of biological and behavioral factors at the individual level. Individuals have a high degree of control over their own health and can increase the efficiency of their health investments by investing in themselves through education. The economic model places the responsibility of health production squarely on the shoulders of individuals to make wise decisions regarding time, investments, and healthcare consumption.

From a healthcare perspective, Grossman's model implies a reactive role for providers to produce health. When needed, health-seeking individuals will approach providers for services because of their individual preference for good health and because an increase in healthcare consumption leads to maintenance and/or improvement in overall

health. Unhealthy individuals or those who forgo primary care do so because they don't gain utility consuming those services. Providers have little accountability to intervene in any other area in the health production function since that responsibility falls on the individual.

This paradigm that perpetuates the notion that the only role that clinical providers play in health production is to cure disease has contributed to the US healthcare system's increasing cost amidst stagnating health outcomes. The fact that the U.S. healthcare system has poured significant time and investment to build the scientific and technological capacity to cure disease yet produces relatively poor population health outcomes indicates that we have overlooked key elements that impact health. To improve efficiency and quality of the healthcare system, providers, policymakers, and their community partners will need to lean on an alternative theory to effectively implement change.

The Social Determinants of Health

Extensive research has demonstrated that socioeconomic context influences health and socioeconomic status is linked to a wide variety of inequitable and disparate health outcomes.^{6,7} The most well-known studies to establish this connection were the Whitehall I and Whitehall II studies, conducted in the UK throughout the latter part of the 20th Century. These studies demonstrated an inverse gradient between mortality and employment grade among British civil servants who had equal access to medical care due

⁶ Marmot, Michael, and Richard G. Wilkinson. "The Life Course, the Social Gradient, and Health." *Social Determinants of Health*, 2005, 54-77. doi:10.1093/acprof:oso/9780198565895.003.04.

⁷ Evans, Timothy. *Challenging Inequities in Health: From Ethics to Action*. New York, NY: Oxford University Press, 2010.

to the U.K.'s National Health System (NHS).⁸ The lower an individual's employment grade, the greater their mortality risk, even when controlling for behavioral factors such as smoking, diet, and exercise, as seen in Figure 1 below. The study authors postured that the social context itself played a greater role in mortality risk than did individual choice, behavior, or consumption of healthcare.

These astounding findings kicked off an explosion of research aimed to identify the mechanisms at play that could explain this social gradient in health. Much of this research naturally has focused on social mechanisms and the ways that they influence health outcomes across the lifespan. This research has led to a new notion of the social (versus biological) determinants of health.

The World Health Organization (WHO) defines the social determinants of health as "the conditions in which people are born, grow, live, work, and age."⁹ These are the key conditions that impact length and quality of life such as education, employment, income, family/social support, community

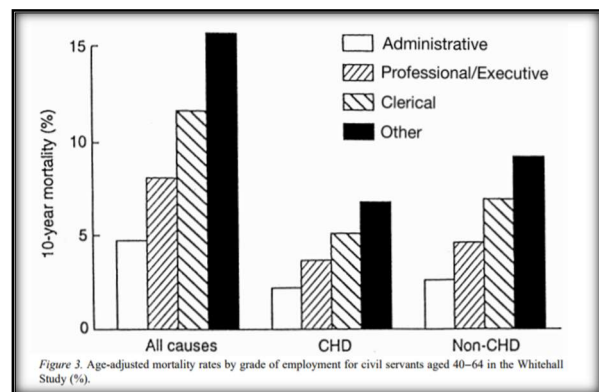


Figure 1: Results from the Whitehall Studies.

This figure demonstrates an inverse gradient between mortality and employment grade among British civil servants.

⁸ Marmot, M.G., S. Stansfeld, C. Patel, F. North, J. Head, I. White, E. Brunner, A. Feeney, and G. Davey Smith. "Health Inequalities among British Civil Servants: The Whitehall II Study." *Lancet* 337, no. 8754 (June 08, 1991): 1387-393. doi:10.1136/jech.56.12.922.

⁹ "About Social Determinants of Health." World Health Organization. September 25, 2017. http://www.who.int/social_determinants/sdh_definition/en/.

safety, air and water quality, food security, housing, transit, and access to healthcare services (among others). As a contrast to Grossman's model, social determinant of health theory views the health of individuals within the greater societal context. Health, therefore, stems from socially-patterned advantages or disadvantages across the lifespan.

The Diderichsen et al. (2001) Framework to Understand the Social Determinants

As evidenced by the Whitehall studies, social context is a stronger predictor of health outcomes than individual choices, including the choice of healthcare consumption. Finn Diderichsen et al. (2001), currently Professor Emeritus in the Department of Public Health at the University of Copenhagen, developed a model as a framework to explain the mechanisms that generate health inequities within and among social groups.¹⁰ This model can inform research and policy entry points to alleviate such social and health inequities.

The Diderichsen et al (2001) model is unique in that it argues that to positively affect health outcomes and decrease health inequalities, it is important to understand the “upstream” societal mechanisms that impact health in addition to those downstream issues like biology and distribution of clinical services. Then, policymakers can introduce policy entry points to disrupt these mechanisms and positively impact health outcomes. The four mechanisms that ultimately lead to inefficient and inequitable health outcomes are social stratification, differential exposure, differential vulnerability, and the social consequences of ill health.¹¹ These mechanisms are explored in-depth below.

¹⁰ Diderichsen, Finn, Timothy Evans, and Margaret Whitehead. "The Social Basis of Disparities in Health." In *Challenging Inequities in Health: From Ethics to Action*, 13-23. Cary, NC: Oxford University Press, 2001.

¹¹ Ibid.

Social Stratification

The first and most fundamental social mechanism in the Diderichsen et al. (2001) model is social stratification. In every society, individuals are grouped into hierarchies based on characteristics related to their social context and position. *Social context* encompasses the characteristics of the broader society or culture. These include community resources like food availability, quality of housing, air, and water quality. They also include and social and community norms.¹²

Social context includes the factors in society that distribute power, wealth, and risks. For example, the social context includes the educational system, the availability of healthy food, or the level of opportunity to participate in the workforce. The social context in the United States, for example, is very different than it is in India because of the way that the political and cultural systems are organized. It is critical to view individuals within the context of their social environment since the environment impacts individuals in many facets of their lives, yet cannot be measured at the individual level.

Just as individuals are understood in relation to their social context, they can also be understood by their position within that context. *Social position* orients individuals within the larger social environment and equates to their standing or class within the society. The social context influences the characteristics that define the social position. A caste society, for example, has clearly defined social classes, wherein the U.S., social position is more heavily influenced by income or occupation. The position is influenced by a myriad of factors, including race, gender, religion, occupation, educational level, and so

¹² Ibid.

forth. Crucially, social position can be passed down generationally to perpetuate the position of specific individuals or groups in society that may have a difficult time improving their position throughout their life as a result.

Differential Exposure

The idea of stratification is central to understand the inequities in health across social groups. Depending on the social position of individuals, they are exposed to a myriad of risk factors due to their socioeconomic circumstances. Social stratification impacts the number and type of health risks that social groups encounter through their lifetime and also influences their behavioral response to those risks. *Differential exposure* to health risks, therefore, is the second mechanism that links social position with health outcomes.

The more frequent the risk exposure, the greater the likelihood of negative health outcomes across the lifespan. For example, groups with less power or wealth are more at risk to experience frequent food or housing insecurity than more advantaged groups. They may have to travel a long distance to reach a grocery store that sells fresh and organic produce and may not have the transportation to get there or the financial resources to buy that food. Individuals with low social position also often earn low incomes, have little power or influence, and have less time and resources to dedicate to a healthy lifestyle. They can be exposed to multiple health risks throughout their lives and are also more likely to be exposed to more than one risk at a time. For example, a single mother struggling to afford rent most likely will also struggle to afford food for herself and her child.

In the early stages of life, differential exposure to risk (including parental poverty and food insecurity), damages child health and sets the child on a trajectory of poorer health

outcomes across their lifespan.¹³ Poor nourishment in childhood raises the risk of reduced cardiovascular, respiratory, kidney, and pancreatic functioning in adulthood.¹⁴ Additionally, socioeconomic factors are key predictors of lead exposure which, especially early in childhood, is poisonous to multiple organ systems in the body and can lead to permanent damage to neurodevelopmental function.¹⁵ These negative childhood exposures illustrate a “life course” theory that posits that the social advantages or disadvantages experienced as a child will accumulate over the lifespan to perpetuate those advantages or disadvantages and continue the cycle across generations.¹⁶

Differential Vulnerability

As demonstrated in the Whitehall studies, the fundamental relationship between social context and resource distribution underlies the inequitable health outcomes seen across socioeconomic groups. When health risks cluster around social groups, those risks interact with each other to lead to the third mechanism that impacts health: *differential vulnerability*. Even when a risk factor is distributed evenly among social groups, its impact on health varies by group. Therefore, some groups are more vulnerable to risk than others. In a society faced with scarce resources, the privileged groups will disproportionately

¹³ Wilkinson, Richard G., and M. G. Marmot. *Social Determinants of Health: The Solid Facts*. 2nd ed. Copenhagen: World Health Organization, Regional Office for Europe, 2003.

¹⁴ Ibid.

¹⁵ *Childhood Lead Poisoning*. Publication. World Health Organization. Geneva, Switzerland: World Health Organization, 2010.

¹⁶ Bartley, M., D. Blane, and S. Montgomery. "Health and the Life Course: Why Safety Nets Matter." *British Medical Journal* 314, no. 7088 (1997): 1194-196.

consume valued commodities such as quality housing or medical care, which strengthens their resiliency to health risks.

Mold exposure is a good example to explore differential vulnerabilities. Mold in a residence can exacerbate existing health conditions like asthma, but privileged groups are less vulnerable to that risk because they have greater access to harm-minimizing resources. For example, a CEO of a large tech firm most likely owns his/her own property and has the financial resources and education level to understand and address mold in the home. Conversely, a janitor working at the same tech firm most likely rents an apartment in a poorer neighborhood. He/she may lack the financial resources, education, and bargaining power to address mold issues and is at the mercy of the landlord to acknowledge and address the hazard. Further, if the janitor is experiencing food insecurity and is unsure even of where his/her next meal will come from, he/she will likely prioritize that need over the need to address a legitimate, but less pressing issue such as mold. In this case, the CEO and the janitor are exposed to the same risk, however, the CEO is more resilient to that risk than the janitor and can address it in a timelier manner. Plus, the janitor is facing multiple risk exposures that interact to affect his/her resiliency. All of these, in turn, lead to higher vulnerability to the same risk factor for those on the lower socioeconomic end than those on the higher end.

Differential Consequences

The final mechanism: *differential consequences* of ill health, is where a majority of the healthcare delivery system is focused today. The underlying social context and stratification impact exposure and vulnerability to health risks, and ultimately leads to

differential health outcomes. Therefore, social stratification ultimately causes differential consequences as health risks accumulate over time, both at the individual level and at the community level. In the United States, where there is not a robust safety net system for healthcare such as universal healthcare, many of the costs associated with ill health, including actual medical costs and the cost of lost productive hours, are absorbed by individuals. More advantaged populations have greater resources to absorb those costs. On the other side of the socioeconomic spectrum, an injury or illness may lead to a significant loss of time and money because of the inability to participate in the workforce, setting them back at an even greater disadvantage. Therefore, even the social consequences of falling ill are more severe for disadvantaged groups.

There are two pathways to explain differential health outcomes as a result of social stratification. One is biological, the other is behavioral. Biologically, stress causes changes in the body that make it more susceptible to illness. Chronic stress compromises the immune system and increases the risk for coronary disease, clinical depression, and heart attacks.¹⁷ Lack of power or material deprivation exposes disadvantaged groups to higher stress. Behaviorally, individuals may turn to unhealthy coping mechanisms such as smoking or drinking to reduce stress. So, disadvantaged individuals are more likely to expose themselves to greater risks as a means to cope and are more vulnerable to the consequences of those risks.

¹⁷ "How Stress Affects Your Health." American Psychological Association. 2013.
<http://www.apa.org/helpcenter/stress.aspx>.

Summary: Framework to Understand the Social Determinants of Health

Ultimately, the Diderichsen et al. (2001) framework identifies the social mechanisms that cause differential health outcomes. Most of one's health in this model is determined by the early, upstream effects of social stratification and differential exposure and vulnerability mechanisms. The accumulation of socially-patterned disadvantages play a crucial role in health outcomes and ultimately leads to health inequities. This framework is illustrated in Figure 2 below.

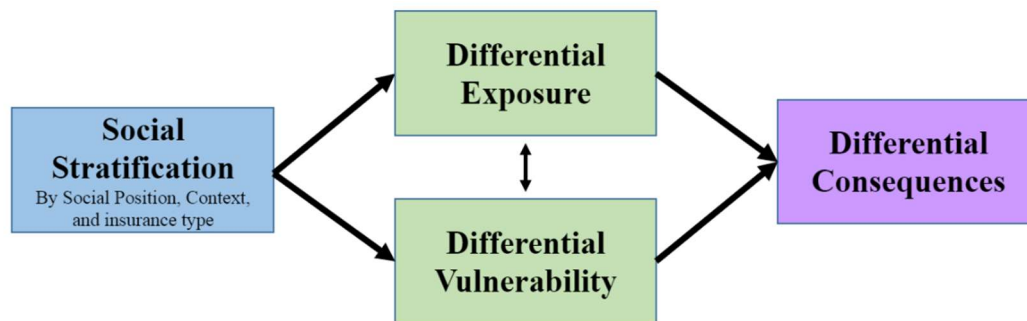


Figure 2: The Social Determinants of Health framework

To effectively disrupt these mechanisms to promote good health and reduce health disparities, it is crucial to impact the most disadvantaged groups, and to do so early on in the lifespan. The interaction of health risks has a larger negative impact on disadvantaged groups, and lead to perpetual negative outcomes across multiple facets of life. Reducing even some risks for highly disadvantaged groups should greatly impact population health outcomes and reduce disparities.

Policy Entry Points to Impact Health Disparities

The Diderichsen et al. (2001) framework identifies those 4 major mechanisms that lead to health inequities among social groups. Each mechanism implies a policy entry point

to disrupt it to improve health outcomes. Crucially, these policies are most effective when they target the most disadvantaged social groups to minimize the negative consequences that accumulate over their lifetime.

Reduce Social Stratification

According to the Diderichsen et al. (2001) framework, the first mechanism (social stratification) can be influenced by larger macro policies that target wealth or power redistribution to reduce the level of social stratification. For example, the Civil Rights Act of 1964 diminished the political and structural disparities between blacks and whites in the United States to provide greater social and economic opportunities to blacks. Theoretically, such a policy should have a positive impact to lessen social disparities among those two groups and therefore lessen the health disparity between them.

Secondly, governments can conduct impact assessments for any new policy measures they may propose to determine any unintended consequences that those policies may have on existing stratifications. Advocates of the life course approach would argue that any policies or impact assessments completed should specifically focus on the most vulnerable populations at the earliest stages in life in order to avoid the negative cumulative effects throughout life. This would translate into policies that promote access to good education, healthy foods, and safe housing for children stemming from poor families.

Reduce Exposures and Vulnerabilities

The most fundamental way to alleviate health disparities is to promote policies that reduce the existence of and divide between social groups. But, the next most effective intervention is to reduce the differential exposures and vulnerability to risk that the lowest

social groups experience. For example, health campaigns that aim to reduce overall smoking rates can have the greatest impact by targeting poor smokers. Otherwise, campaigns targeted at broader audiences will have the unintended consequence to reach the richer, more educated smokers, causing them to quit smoking but not affecting poorer smokers. This exacerbates the disparity in smoking rates by social class. Targeting poor smokers can also influence their children and reduce the lifetime of perpetual health disparities they may experience.

Another policy entry point is to reduce risks that only certain groups experience, such as food insecurity. Food insecurity, especially early in life, is associated with many negative health outcomes. Food insecurity also impacts other facets of one's life and decreases the ability to be healthy. For example, the stress caused by not knowing where your next meal is coming from can trigger biological changes in the body that harm health, and also behavioral changes that may encourage unhealthy habits in order to cope, like smoking. Reducing a key risk exposure such as food security can also then decrease the disparate vulnerability that those groups experience due to the interaction of a myriad of health risks. Once someone is confident that they will be able to eat, they can focus energy on other priorities, may experience less stress, and so forth. So, removing that key risk exposure provides a domino effect to positively affect the quality of life and health.

Prevent Unequal Consequences

The largest question that policymakers face today in regards to health inequities is how to reduce or eliminate unequal outcomes and consequences across social groups. Currently, much of the healthcare delivery system in the U.S. is focused on this last

mechanism to reduce the negative consequences of ill health. Providers strive to distribute their clinical services according to need, to cure illness for the sickest and thus lessen the downtime they may experience as a result of their condition. The healthcare system's entire focus has been to disrupt this last social determinant of health mechanism where the earlier social mechanisms have already caused harm. The earlier stratification, exposure, and vulnerability mechanisms have been regarded as a realm outside of the providers' role. However, the defining question in this thesis asks whether providers can and should intervene earlier on in the social determinant of health mechanisms.

A New Paradigm: Clinical Providers Addressing Social Determinants of Health

Clinical providers and health systems in the United States have been operating under the assertion that they have a narrow and limited role in the actual production of health upfront, and that they exist to cure disease versus maintain health. However, there is a new policy climate as regulators work to curb the increasing costs of medical care. Policy, payment, and delivery reforms are incenting and in some cases mandating that clinical providers take a more proactive role to produce health and intervene in the earlier social determinant of health mechanisms. Providers are now beginning to see that they can play a role to reduce differential exposure and vulnerabilities for their patient populations, which will be further explored in the next chapter.

From a social determinant of health perspective, if providers are to play a role impacting the social determinants of health, they should aim to minimize as much as possible the accumulation of socially-patterned disadvantages to promote better, more equitable population health outcomes and lowered costs. Following the Diderichsen et al.

(2001) model, targeting the most vulnerable patient populations will provide the greatest rewards.

An additional result of social stratification is the stratification of individuals into different health insurance types. Poorer individuals are more likely to be uninsured or covered by Medicaid over other, more robust Commercial insurance plans. Medicaid and uninsured patients face socioeconomic challenges, higher medical challenges, and often have a high cost of care. Therefore, if providers are to disrupt the social determinant of health mechanisms to improve health outcomes, they should specifically target interventions aimed at their uninsured and Medicaid populations. Once they've decided to target those populations, they can then design targeted interventions at particular social determinants of health that those populations experience that contribute to poor health outcomes.

Provider Social Determinant of Health Intervention: Food Insecurity

Given that food security is a basic social determinant of health that interacts with other risks to influence health outcomes, there is an argument to be made for providers to address this need. The problem is that in the past, providers had little economic incentive to do so. Emerging policy, payment, and delivery reform efforts are increasingly giving providers a reason and a roadmap to intervene earlier in the social determinant of health mechanisms. Since food security is such a basic need that impacts multiple health outcomes, providers have the opportunity to partner with other organizations in their community to intervene and address that need.

Food is a basic human need and food security is a prime example of differential exposure to health risk for different social groups. Food insecurity is defined by U.S. Department of Agriculture Economic Research Service as "the limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways."¹⁸ Food insecurity is an important public health and social justice issue in the United States with over 14% of the overall population experiencing food insecurity at any given time and nearly 23% of households with children experiencing food insecurity. In other words, almost 50 million people experience food insecurity every year.¹⁹

Food security is one of the most important social determinants of health due to its contribution to health outcomes and as one of the main basic human needs along with water, shelter, and clothing. For all age groups, food insecurity has been linked to lower nutrient intakes, increased risks of birth defects, anemia, higher rates of depression, anxiety, and worse oral health.²⁰ For medical providers, a diabetic patient experiencing food insecurity will have a more difficult time adhering to their treatment plan if it involves a diabetes-friendly diet and that person is struggling to afford food. This exacerbates medical issues that arise from diabetes and increases the cost to care for that patient down the line.

¹⁸ "Food Security in the US." USDA ERS - Food Security in the US. Accessed April 23, 2018. <https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/measurement/>.

¹⁹ Gundersen, Craig, and James P. Ziliak. "Food Insecurity and Health Outcomes." *Health Affairs* 34, no. 11 (2015): 1830-839. doi:10.1377/hlthaff.2015.0645.

²⁰ Food Insecurity and Health Outcomes. 1832.

It is important to note that many of the predictive factors for food insecurity are also important social determinants of health. For example, households with lower incomes headed by African American or Hispanic people, single individuals (including divorced or separated), renters, younger, and less-educated people are more likely to experience food insecurity.²¹ Thus, Medicaid and uninsured patients are also more likely to experience food insecurity. This again highlights how programming to prevent or alleviate food insecurity should be targeted towards the most at-risk groups, and in the case of the health system, towards their Medicaid/Uninsured patient populations.

Conclusion

Chapter 1 explored the traditional model on the demand for health and healthcare through a brief exploration of Michael Grossman's Human Capital Theory, along with its implications in today's healthcare delivery paradigm. This theory helps explain the mindset of providers and policymakers in terms of the health system's traditional role in the production of health, which is to cure disease. However, with ever-increasing costs, coupled with relatively poor outcomes, the time has come for a paradigm shift in the way that the health system engages with patients to produce better population health. Social determinant of health theory provides the tools and policy entry points to change the way that the health system interacts with the most vulnerable patients to improve their health at a lower cost. Policy, payment, and delivery reform are beginning to nudge the provider role towards the earlier stratification, exposure, and vulnerability mechanisms that impact

²¹ Ibid.

health in addition to their already robust role in the final mechanism. The next chapter will provide an in-depth look at some of those key reforms and their implications.

CHAPTER 2: AN IMPETUS FOR CHANGE

The sheer volume of research and evidence linking social and economic circumstances with health outcomes has not been lost on the medical community. Anecdotally, the large majority of providers agree that meeting social needs are equally as important as providing high-quality medical care. Internationally, there has been a call to action to eliminate health disparities seen along socioeconomic lines. The 1946 Constitution of the World Health Organization states that “the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition.”²² Furthermore, article 25 of the 1948 Universal Declaration of Human Rights adopted by the United Nations General Assembly mentions health and well-being as part of the right to an adequate standard of living.²³ As evidence mounts linking social factors with health outcomes, policymakers have initiated a call to action to improve population health outcomes and contain healthcare costs.

²² "Constitution of WHO: Principles." World Health Organization. <http://www.who.int/about/mission/en/>.

²³ "Universal Declaration of Human Rights." The United Nations. <http://www.un.org/en/universal-declaration-human-rights/>.

The Triple Aim

In 2008, the Institute for Healthcare Improvement (IHI) developed a framework for health systems and providers to optimize performance by honing in on 3 main tenets in what has come to be known as the "Triple Aim." These are: improve patient experience, improve the health of the population, and

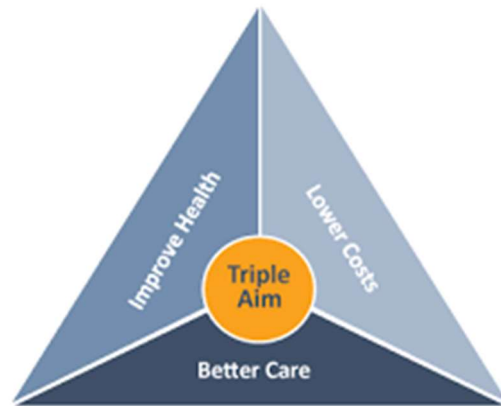


Figure 3: The Triple Aim

reduce the per capita costs of care. The Triple Aim framework has since been used extensively by health systems and policymakers as the fundamental framework to organize the healthcare system. Healthcare organizations are coming to an increased realization that socioeconomic factors contribute more to health outcomes at the margin than medical interventions and that the most cost-effective ways to achieve the triple aim are through interventions that address social needs, especially for Medicaid and uninsured populations. Until recently, the U.S. healthcare system has not had sufficient economic incentives to change their delivery system to intervene in the earlier social determinant of health mechanisms. However, healthcare reform has largely been built on the tenets of the Triple Aim, and there is an increasing understanding and acceptance among providers and healthcare systems on the importance of social circumstances on health, and they are beginning to re-think their role to disrupt those social mechanisms that negatively impact health.

Healthcare Reform

Informed by the Triple Aim and accelerated by the burning platform to improve the sustainability of the U.S. healthcare system, policymakers have introduced important reforms that hold providers more accountable for outcomes and the total cost of care. These reforms have given providers economic incentives to invest in primary care and in programs to address certain social determinants of health. These reforms have furthered the paradigm shift that will re-define the role of the healthcare system to address patient social and economic needs alongside their medical needs. This paradigm shift is often referred to as the shift from “volume” to “value”, implying that the system is moving from a fee-for-service model (that rewards volume) to one that pays for value (defined as producing the best outcomes at the lowest cost).

In a fee-for-volume structure, each additional unit of medical care yields an additional reimbursement. Providers are incented to over-provide clinical services since they are financially rewarded for the volume of procedures, not the quality of outcomes. The fee-for-volume reimbursement structure financially aligns with the prior paradigm and the provider’s understanding of their role in the health production function where a higher volume of medical services leads to improved health. However, changes in the healthcare landscape informed by the Triple Aim have begun to promote incentives that financially reward providers for keeping people healthy at a lower cost and thus incent implementing programs to disrupt the social determinant of health mechanisms.

The Patient Protection and Affordable Care Act: Key Reforms

The Patient Protection and Affordable Care Act (ACA), enacted in March of 2010, was the culmination of years of healthcare reform talks in the United States and is the most significant reform to the healthcare system since the Centers for Medicare and Medicaid Services was created in 1965. The ACA implemented a number of key reforms to both the payment and delivery of healthcare that are crucial to accelerating the adoption of a "value-based care" model in the U.S. and that will give providers a greater role to play in the social determinant of health mechanisms. These reforms give direct and indirect economic benefit to providers that implement social determinant of health interventions within the clinical setting. Key reforms include Medicaid expansion, the requirement for tax-exempt hospitals to conduct Community Health Needs Assessments, and delivery and payment system reform through the advent of Accountable Care Organizations.

Medicaid Expansion

Medicaid, a joint state- and federally-funded program, provides health insurance coverage for very low-income individuals, families, and children. The ACA expanded coverage eligibility guidelines for Medicaid to individual adults with incomes below 133% of the Federal Poverty Level (FPL) and to families with incomes below 400% FPL. States had the option to expand their Medicaid programs, with the federal government bearing the full cost of expansion through the end of 2016, then decreasing to 90% over the course

of 2016-2020 where it will remain.²⁴ As of November 2018, 37 states including DC had expanded Medicaid, and 14 states opted out of the program.²⁵

From a social determinant of health standpoint, Medicaid expansion targets the final mechanism in the Diderichsen et al. (2001) framework by promoting access to clinical services for the most vulnerable populations to reduce the consequences of ill health. In that regard, it has largely succeeded. Medicaid expansion has shown progress in improving access, decreasing the uninsured rate, and improving health outcomes.²⁶ Medicaid expansion intended to increase access to clinical services to better distribute care according to need and led to millions of Americans to gain coverage.

For clinical providers, Medicaid expansion was generally positive as more of their patient population now had coverage and providers could receive better reimbursement for that care. It also led to an increased demand for clinical services as previously-uninsured individuals sought care for perhaps the first time in years. In the social determinant of health context, Medicaid expansion meant that providers now had greater opportunity to intervene, cure illness, and reduce the consequences of ill health for this vulnerable population. But, Medicaid expansion also helped give providers a business case to address certain social determinants for this patient population.

²⁴ "State and Federal Spending under the ACA." Provider Payment and Delivery Systems: MACPAC. <https://www.macpac.gov/subtopic/state-and-federal-spending-under-the-aca/>.

²⁵ "Current Status of State Medicaid Expansion Decisions." The Henry J. Kaiser Family Foundation. November 07, 2018. <https://www.kff.org/health-reform/slide/current-status-of-the-medicaid-expansion-decision/>.

²⁶ Antonisse, Larisa, Rachel Garfield, Robin Rudowitz, and Samantha Artiga. "The Effects of Medicaid Expansion under the ACA: Updated Findings from a Literature Review." The Henry J. Kaiser Family Foundation. March 28, 2018. Accessed June 05, 2018. <https://www.kff.org/medicaid/issue-brief/the-effects-of-medicaid-expansion-under-the-aca-updated-findings-from-a-literature-review-march-2018/>.

Financially, Medicaid is the least profitable payer. For example, Medicaid may only pay \$30 per primary care visit to the provider, whereas United could pay \$100 per visit. The Medicaid patient is more likely to have complex health needs that are more difficult to address – perhaps the patient has multiple chronic conditions like COPD and hypertension. The United patient is less likely to have such complex medical needs because they are less likely to have been negatively affected by the social mechanisms at play. The provider will need to spend more time and resources to address the Medicaid patient's conditions while getting reimbursed significantly less to do so.

Profit-maximizing providers are therefore incentivized to decrease demand for their services for their Medicaid patients (I.e. get them healthier) relative to commercial patients so they can get a higher average per-service reimbursement. For this specific population, providers actually want to decrease the number of services they provide or at least promote services at the lowest possible cost. From the provider standpoint, they would want to decrease health disparities between those patient populations and especially get their Medicaid and uninsured populations healthier.

Medicaid expansion increased demand for clinical services by the group who needed it the most (as expansion intended), and actually gave providers financial incentive to try to decrease that demand again. Short of not accepting Medicaid patients, providers are having to think outside the box to decrease the demand for their services at the lowest possible cost. Here again, enters the social determinants of health. Interventions that address key social determinants of health like food security are relatively cheap to implement but have ripple effects to improve health. Medicaid expansion had its intended

effect to promote access to care to disrupt the consequences of ill health, but also had the added-on effect of getting providers to think of new and novel ways to improve health and protect their bottom line by intervening in the earlier social determinant of health mechanisms to prevent patients from getting to their doors as often.

Community Health Needs Assessments

The second key ACA reform that gives providers a “how” and “why” to intervene in the social determinant of health mechanisms was the requirement for tax-exempt hospitals to conduct a Community Health Needs Assessment (CHNA) every three years to inform a strategic, population-health focused approach for their community benefit spending. Non-profit hospitals must collaborate with community partners, including local public health departments and social service agencies, to analyze their collective quantitative and qualitative data to identify top health and socioeconomic needs in the communities they serve. These organizations collaborate to stratify those needs by impact, urgency, and alignment to prioritize health needs to address by leveraging these community partnerships and community benefit dollars. Hospitals are then required to identify programs in partnership with these other agencies that can have an impact on the health needs they prioritized, and to publish an implementation plan to outline how they will tackle those health needs. These CHNAs and implementation plans must be posted and publicly available for every non-profit hospital that is tax exempt under section 501(c)(3).

The CHNA requirement was born out of increased scrutiny that non-profit hospitals do not fulfill their obligation to re-invest in their communities as required to justify their

tax exemption.²⁷ Essentially, the CHNA mandates that non-profit healthcare systems justify their existence as charitable organizations versus strictly medical providers. The tax-exempt status provides a huge subsidy to non-profit health systems: in 2011, the value of federal, state, and local tax exemptions, tax-deductibility of charitable contributions, and tax-exempt bond financing was over \$24.6B.²⁸ In turn, non-profit hospitals report the total amount and type of Community Benefit that they provide. The IRS defines a Community Benefit as a program or activity that addresses a demonstrated community need and aims to improve access to healthcare services, enhance public health, enhance knowledge through research or education, or relieve/reduce the burden of government to improve health outcomes.²⁹ From a hospital provider perspective, community benefit can be comprised of charity care, the financial shortfall from Medicaid (the difference between the Medicaid reimbursement rate and the actual cost of care), bad debt, and community programs.

Hospitals that fail to conduct and report on a CHNA are subject to a \$50,000 excise tax penalty and are at increased risk of losing their tax-exempt status altogether.³⁰ In fact, in 2017 the IRS revoked the tax-exempt status of an unnamed hospital for failing to comply

²⁷ "Nonprofit Hospitals' Community Benefit Requirements, " Health Affairs Health Policy Brief, February 25, 2016.DOI: 10.1377/hpb20160225.954803

²⁸ Rosenbaum, Sara, David A. Kindig, Jie Bao, Maureen K. Byrnes, and Colin O'Laughlin. "The Value Of The Nonprofit Hospital Tax Exemption Was \$24.6 Billion In 2011." *Health Affairs*34, no. 7 (2015): 1225-233. doi:10.1377/hlthaff.2014.1424.

²⁹ *2017 Instructions for Schedule H (Form 990)*. PDF. Department of the Treasury: Internal Revenue Service.

³⁰ Nonprofit Hospitals' Community Benefit Requirements, 2016.

with the ACA requirement to conduct a CHNA, adopt an implementation strategy, and make it widely available to the public.³¹ This was the first and so far the only time a hospital has lost a tax-exempt status for failing to conduct the CHNA as required by the ACA. This case acts as a cautionary tale for other non-profit hospitals and healthcare providers to ensure they comply with this requirement or risk losing a tax benefit worth billions of dollars.

Historically, a very small percentage of hospital community benefit went back to the community and instead was spent on charity care and Medicaid shortfall. Medicaid expansion increased the supply of patients with insurance coverage and therefore decreased the demand for charity care. In turn, the ACA set the CHNA requirement to mandate greater community benefit spending towards programs that impact community health outside the hospital walls. This policy gives providers both the “how” and the “why” to address the earlier social determinant of health mechanisms around stratification, differential exposure, and differential vulnerability. The CHNA requirement encourages providers to lessen their focus on the consequences of ill health by placing higher scrutiny on the percentage of community benefit spending devoted to charity care or Medicaid shortfall.

The CHNA is a policy mandate to push clinical providers to play a greater role in the earlier social determinant of health mechanisms. But the policy recognizes that this is new territory for providers conditioned within the biomedical model and that providers are

³¹ United States of America. Department of the Treasury. Internal Revenue Service. August 4, 2017. <https://www.irs.gov/pub/irs-wd/201731014.pdf>.

unlikely to achieve significant gains on their own. Thus, it mandates collaboration with public health and other community agencies and stakeholders who have had the organizational focus on the social determinant of health interventions for a long time.

The CHNA requirement is significant in re-defining the providers' role in the earlier social determinant of health mechanisms for a couple of reasons. The first is that it incorporates social determinant of health theory into practice within non-profit health systems. The CHNA requirement shifts the expectation so that non-profit hospitals need to strategically work with community partners to address *community* needs and to invest in programs outside of clinical delivery. With Medicaid expansion and the increased reimbursement from Medicaid coupled by a decrease in the need for Charity Care, the expectation is to take some of that money that used to be allocated to Charity Care and shift that to the community. Thus, it mandates providers to move the focus towards the earlier vulnerability and risk exposure mechanisms. The CHNA implements a culture change among providers as well – showing them that they can intervene and positively affect social determinants of health as part of their care delivery model. It facilitates greater connections between the medical, social service, and public health communities to give patients a more seamless continuum of care across multiple facets of their life.

The second reason that the CHNA requirement is significant is that it galvanizes the power of non-profit hospitals to have a more meaningful interaction with their community to break down silos and to address social factors that impact health. As of 2016, there were 4,840 community hospitals in the United States, and nearly 59% (2,849) of those

were non-profit.³² Under the biomedical paradigm, hospitals and clinical providers operate in a silo separate from other community partners working to impact health and quality of life. The CHNA requirement integrates a public health approach for hospitals to improve the health of their community and break down silos between healthcare, public health, and social service systems. Thus, it forces providers to re-think the impact they can have on the earlier social determinant of health mechanisms, to come up with new and innovative ways to address social needs in partnership with community agencies.

Accountable Care Organizations

The final key ACA reform that contributes to the paradigm shift in the U.S. healthcare delivery system is the advent of Accountable Care Organizations (ACOs). An ACO is “a provider-led organization whose mission is to manage the full continuum of care and be accountable for the overall costs and quality of care for a defined population.”³³ An ACO consists of a group of doctors, payers, hospitals, and other healthcare providers who collaborate to coordinate the care of the patients who are members of that ACO. On the surface, Accountable Care Organizations largely target the providers' focus and role in the last mechanism that impacts health, as they are designed to improve the care delivery system and reduce costs. However, there incremental structural and payment incentive mechanisms that give providers an incentive to intervene in the earlier stratification, vulnerability, and exposure mechanisms as well.

³² "Fast Facts on U.S. Hospitals, 2018 | AHA." American Hospital Association. February 2018. <https://www.aha.org/statistics/fast-facts-us-hospitals>.

³³ Rittenhouse, Diane R., Stephen M. Shortell, and Elliott S. Fisher. "Primary Care and Accountable Care — Two Essential Elements of Delivery-System Reform." *New England Journal of Medicine* 361, no. 24 (2009): 2301-303. doi:10.1056/nejmp0909327.

On the payment side, ACOs are typically paid in risk contracting arrangements. Most common is a capitated basis to manage the care of its patients through a per-member, per-month (PMPM) payment. For example, if there are 1,000 members at a PMPM payment of \$10, the ACO would receive \$10,000 per month with which to care for those patients. The marginal revenue of patient care is therefore fixed and the ACO receives funding regardless of how much the patient utilizes services. So, ACOs are also incented to decrease the demand for their services by keeping their patients healthy. The capitated payment structure places the financial risk on providers to ensure that they keep the total cost of care for their entire patient population under that PMPM reimbursement. If their overall patient population is relatively unhealthy and therefore demands more services, the ACO risks a financial loss.

ACOs also have a shared savings component. That is, when an ACO meets certain quality metrics and reduces the cost of care below a historical benchmark, they qualify for a bonus from the payer. Essentially, the payer will "share" the savings they realized for the patients under the care of that ACO. These quality measures include patient experience and patient safety measures, clinical outcomes measures such as diabetes and hypertension prevalence, and preventive health measures such as vaccination rates. Again, these metrics demonstrate that the main goal of the ACO is to maximize the provider's efficiency in addressing the consequences of ill health.

Though their main goal is to increase access to care, reduce costs, and improve the patient experience, many ACOs have integrated social programs as an effective way to meet their clinical quality metrics and achieve shared savings. From a structural standpoint,

ACOs also encourage clinical providers to play a greater role in the earlier stratification, exposure, and vulnerability mechanisms. For example, Oregon is considering implementing new incentive measures for their Coordinated Care Organizations related to the social determinants of health. In particular, they are considering a food insecurity screening measure to encourage providers to screen their patients for food insecurity and then intervene and provide a referral to a community or health plan resource.³⁴

In some cases, states strongly encourage or even require that their Medicaid ACO programs implement social determinant of health interventions to mandate that clinical providers intervene earlier on in those mechanisms. For example, New York requires that certain providers operating under Value-Based Payment arrangements, including ACOs, implement at least one social determinant of health intervention, in partnership with organizations in the community.³⁵ The state provides a comprehensive "menu" of programs to choose from, such as fruit and vegetable prescription programs, to help providers bridge the gap between what they know through the biomedical model to help them intervene earlier on in the social determinants of health.³⁶

The ACO framework significantly alters the care delivery and reimbursement model for healthcare providers. Normally, under the fee-for-volume structure, a higher

³⁴ United States. Oregon Health Authority. Health Plan Quality Metrics Committee. November 2017. <https://www.oregon.gov/oha/HPA/ANALYTICS/MetricsScoringMeetingDocuments/MS-recommendations-to-HPQMC.pdf>.

³⁵ United States. New York State Department of Health. Medicaid Redesign Team. *A Path Toward Value Based Payment: Annual Update*. NY, 2016. 40-43.

³⁶ Crumley, Diana, and Marlise Pierre-Wright. "Addressing Social Determinants of Health through Medicaid Accountable Care Organizations." Center for Health Care Strategies. April 18, 2018. <https://www.chcs.org/addressing-social-determinants-health-medicare-accountable-care-organizations/>.

volume of services equates to higher reimbursement thus higher profitability. In an ACO, higher volume of services equates to higher cost while operating under fixed reimbursement. It is more beneficial for healthcare providers to decrease the demand for their services by keeping patients healthy.

Conclusion

As outlined in Chapter 1, the social determinants of health framework gets to the root causes of poor health outcomes, especially for the most disadvantaged groups. As the cost of the healthcare system in the U.S. has skyrocketed amidst stagnating health outcomes, there has been a call to action to reform the policy, payment, and delivery systems in alignment with the tenets of the Triple Aim. The ACA set forth key reforms that are helping re-define the provider's role so that they do continue their focus on reducing the consequences of ill health, but also begin to play a greater role to disrupt the earlier stratification, risk exposure, and vulnerability mechanisms that impact health. Medicaid expansion, the CHNA requirement, and the ACO structure have set the healthcare delivery system on a trajectory to undergo a major paradigm shift in the health care system's role to influence health outside of the clinical walls. The next chapter will provide a case study in Colorado to demonstrate how this paradigm shift is being put into action.

CHAPTER 3: CASE STUDY OF COLORADO AND CENTURA HEALTH

Thus far, this thesis has focused on the continuing paradigm shift facing the healthcare delivery system in the United States that will give providers a greater role to play to impact the social mechanisms that lead to poor health outcomes. It is clear, based on the Diderichsen et al (2001) framework, that the most effective interventions to impact health occur at the earlier stages, through policies that reduce social stratification and that reduce exposure and vulnerability mechanisms. The most effective interventions should be targeted at the most disadvantaged groups. Because of the interplay between social status and health insurance coverage, the most disadvantaged populations are uninsured or covered by Medicaid. Thus, providers have an opportunity to intervene in certain social determinants of health by focusing their efforts on their Medicaid and uninsured patients.

In Colorado, the largest healthcare system is Centura Health, a faith-based, non-profit system operating 18 hospitals (16 of those in Colorado), over 100 physician practices, and Flight for Life. Centura has been impacted by all the aforementioned key reforms, including Medicaid expansion and the CHNA requirement. Centura Health has responded to the shifting policy, payment, and delivery context to make incremental investments to build the organizational capacity to implement policy entry points geared to reduce the earlier vulnerability and risk mechanisms that their most disadvantaged populations face. Notably, food insecurity has been a key social determinant of health that

Centura has chosen to focus on. Since Centura Health does not directly control the Medicaid ACOs in Colorado, this chapter will focus more on the impact of Medicaid expansion and the CHNA. However, the changes to the delivery system are an important contextual backdrop to keep in mind.

Medicaid Expansion and the CHNA

Colorado was an early adopter of Medicaid expansion through the ACA. According to the Colorado Health Institute's (CHI) 2017 Health Access Survey, Medicaid expansion resulted in over 400,000 individuals in Colorado to gain coverage and decreased the uninsured rate across the state from 15.8% to 6.5%.³⁷ However, Medicaid expansion did not achieve universal coverage, as nearly 350,000 individuals in Colorado are still uninsured. CHI estimates that a quarter of these do not have citizenship documentation and are largely members of disadvantaged social groups, such as individuals without a high school diploma, those living under poverty, and minority ethnic groups, again highlighting how stratification mechanisms also influence health insurance type and healthcare access.³⁸

Centura Health felt the impact of Medicaid expansion on their patient volumes and their payer mix. Medicaid expansion took effect in 2014. From 2013-2017, Centura experienced a 37% increase in total patient volume.³⁹ Medicaid expansion was a major contributor to that increase as total Medicaid volumes more than doubled during the same

³⁷ 2017 Colorado Health Access Survey: *The New Normal*. Report. Colorado Health Institute. September 18, 2017. <https://www.coloradohealthinstitute.org/research/colorado-health-access-survey-2017>.

³⁸ Ibid.

³⁹ MCD Volume 2013-2017. February 2018. Raw data. Centura Health Eval Department, Centennial.

time. This could show that cost was indeed a major barrier to consuming healthcare. Removing that cost via Medicaid expansion therefore increased demand for medical services, explaining why there was such a significant increase in patient volume at Centura Health.

Medicaid expansion also had profound impacts on Centura's overall payer mix, as fewer people were uninsured and now were covered by Medicaid. As a percentage of total volume, Medicaid increased from 10.5% in 2013 (pre-expansion) to nearly 18% in 2017 (post-expansion). Concurrently, Self-Pay/Charity Care volumes decreased from 7% to only 2.5% as shown in the graph below.⁴⁰ Again, as the payer mix shifts towards higher Medicaid, which is typically the least profitable payer, it decreases the overall marginal revenue for the system. Previously, large systems could absorb the Medicaid loss because it was such a small proportion of their payer mix. Suddenly, as Medicaid began to take up nearly 1/5 of the payer mix, causing Charity Care demand to decrease (which is an important component of their Community Benefit), it forces them to think of new ways to reduce their costs and to meet their requirements as a non-profit institution.

⁴⁰ Ibid.

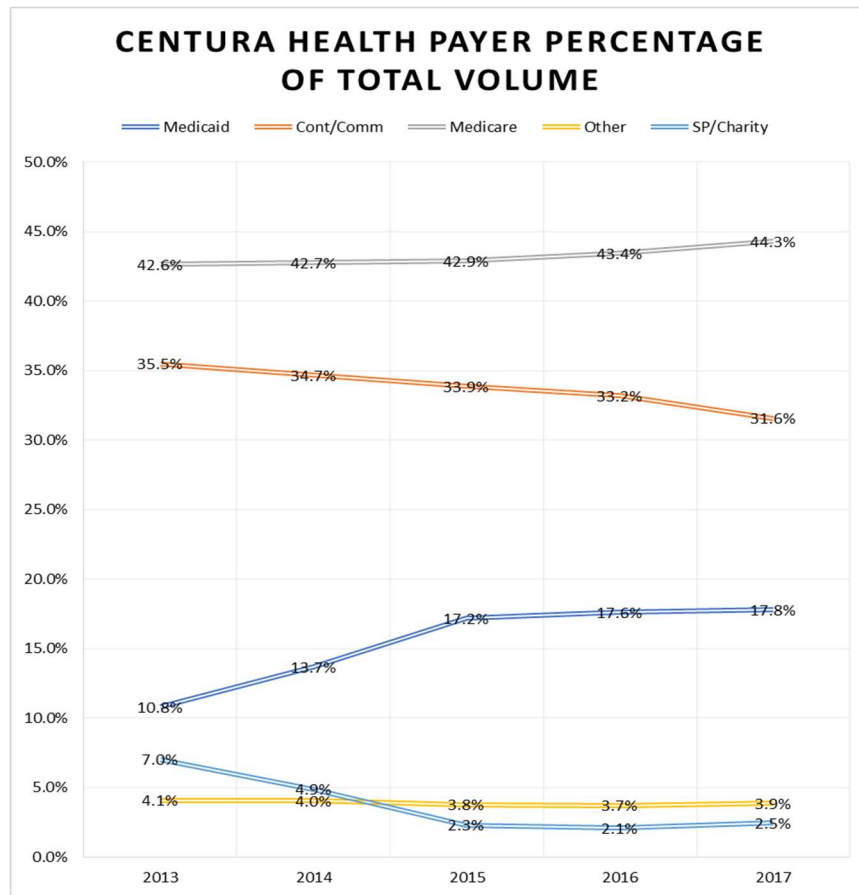


Figure 4: Centura Health Payer Percentage of Total Volume

As explored in earlier chapters, Medicaid expansion is a policy entry point specifically targeted to address the final social determinant of health mechanism in the Dederichsen et al. (2001) model, which is the differential consequences of ill health. Medicaid expansion breaks down cost barriers for the most marginalized groups to consume care. Centura Health experienced this when their patient volume and Medicaid percentage of total volume increased. However, an additional effect of Medicaid expansion was that it skewed the health system's payer mix towards Medicaid and therefore impacted their marginal reimbursement. Therefore, it gave them incentive to lower their marginal

costs and to decrease demand from Medicaid patients. Profit-maximizing providers will try to minimize the volume of services they provide to patients who have the least profitable payer (Medicaid) while maximizing services to patients with the most profitable payer (private and commercial insurance providers), subject to political scrutiny and capacity constraints. Although Centura Health is a non-profit organization, there is still much organizational focus to increase and sustain their profit margins.

Concurrently, there is heightened political scrutiny on Community Benefit spending as Medicaid expansion decreased the need to provide charity care, and put pressure on the system to justify their tax-exempt status in a different way. The CHNA requirement actually offered a strategic way to maximize their Community Benefit spending to “enhance public health” as the IRS defines one portion of Community Benefit, and was the most crucial reform to push a large hospital system like Centura Health to re-examine their role in the social determinant of health mechanisms.

The CHNA mandates healthcare providers to enter into the social determinant of health space and gives a roadmap for how to do so in partnership with agencies who already have that expertise. The increased scrutiny on how hospitals allocate their Community Benefit spending to justify their tax-exempt status placed real financial risk on the system to comply. Similar to other hospital systems, Centura used a large proportion of Community Benefit spending on Charity Care and Medicaid shortfall, which again are health system interventions to alleviate the differential consequences of ill health by providing clinical care once individuals have already gotten sick. The CHNA requirement then mandated that the health system collaborate with community organizations and local

public health departments to identify and develop additional policy entry points to target interventions to decrease differential risk exposure and vulnerability.

Building Organizational Capacity to Address Social Determinants

Medicaid expansion and the CHNA requirement helped to push providers from the biomedical paradigm towards a social determinant of health paradigm in healthcare. At Centura, it was crucial to build their organizational capacity to comply with these new requirements and to get ready to succeed in the new paradigm. In response to these shifting market contexts in the Medicaid market, and given the new CHNA requirement, Centura invested in a new leadership position at the system level in 2014 to lead the effort to enhance Centura's organizational capacity to remain profitable in the midst of this changing paradigm. A Senior Vice President of Community Health role never before existed at Centura Health, but the fact that Centura created this position demonstrates how seriously they took the changing Medicaid market context and new regulatory requirements, as well as their willingness to explore new ways to invest in community health.

In many cases, the local hospitals also did not have someone already on staff to lead the CHNA process and had to fill that gap to meet the requirement. Centura largely recruited candidates with public health backgrounds to fill those positions at the hospital level. For example, St. Anthony Hospital in Lakewood, CO hired a Director of Community Health with a Masters in Public Health degree and extensive working experience in community health initiatives, including the Colorado Blueprint to End Hunger. This is significant because the public health profession is generally the one to develop and

implement policy entry points to address the social determinants of health mechanisms. Hiring people with that perspective into a health system so focused on the final social determinant of health accelerated a cultural shift within the system. This would not have happened nearly as quickly without the CHNA requirement.

Overview: Centura's CHNA

After filling some of the organizational gaps in terms of staffing, Centura Health conducted their first CHNA in partnership with local public health and other community agencies in 2016. The SVP at the system level provided oversight to the CHNA process to ensure consistency in methodology across the system. Each hospital then designated their own facility lead to build the local relationships necessary to conduct the assessment and to develop the implementation plans. The hospital lead convened a CHNA subcommittee that included hospital staff, local public health representatives, and other community partners including food banks, faith communities, and law enforcement. These subcommittees helped to gather, evaluate, and provide input on health-related data for that hospital's service area to identify and prioritize the needs of that community. Then, the subcommittee collaborated to develop an action plan to address the prioritized health needs by leveraging the health system and existing community resources. The below chart illustrates the prioritized needs for each Centura facility for the 2016 CHNA.

	Prioritized Need								
Hospital	Diabetes	Unintentional Injury	Intentional Injury (Suicide)	Mental Health	Substance Abuse	Obesity, Overweight, Nutrition	Breast Cancer	Lung Disease Tobacco	Heart Disease
Avista Adventist									
St. Anthony North									
St. Anthony									
Longmont United									
St. Anthony Summit									
Castle Rock Adventist									
Littleton Adventist									
Porter Adventist									
Parker Adventist									
Penrose-St. Francis									
St. Mary-Corwin									
St. Thomas More									
Mercy Regional									
St. Catherine									

Figure 5: Centura Health CHNA Prioritized Needs

Key Accomplishments

The CHNA process across Centura Health not only checked the box on an important regulatory requirement, but it offered some key accomplishments for the health system readying itself for a fundamental paradigm shift. One of the most important accomplishment from of the CHNA was the enhanced collaboration and partnership between the hospital system, their local community organizations, and local public health departments. In fact, Boulder County Public Health Department agreed to conduct a joint CHNA in partnership with Avista Adventist Hospital every 3 years when normally they are only required to conduct a CHNA every 5 years as a public health organization. The health system is not currently positioned to implement any social determinant of health

interventions on their own, so this collaboration with local public health and other community agencies is crucial to affectively address those social mechanisms. These organizations have generally operated as silos. The CHNA gave each organization the opportunity to weigh in on the community's greatest needs, and then to leverage each other's strengths to develop strategies so they could have the greatest collective impact.

There are many examples of collaboration between the hospital and their local community partners because of the CHNA. Parker Adventist Hospital, in Parker, CO, collaborated with clinical and non-clinical partners, including the local city government, Tri-County Health Department, the Crisis Center, and the Parker Police Department, among others.⁴¹ Porter Adventist Hospital in Denver, CO, collaborated with Denver Public Health, Tri-County Public Health, Doctors Care, Community Services, the South Metro Health Alliance, and Christian Living Communities.⁴² Farther out in the state, Mercy Regional Medical Center in Durango, CO worked with San Juan Basin Health Department, Axis Health Systems, Community Health Action Coalition, and the Southern Ute Indian tribe.⁴³ The level of formal collaboration between the health system and these agencies was unprecedented and demonstrated how hospitals could collaborate with organizations that had traditionally had more focus on the social determinants of health.

⁴¹ *2016 Community Health Needs Assessment: Parker Adventist Hospital*. Report. Parker Adventist Hospital, Centura Health. Denver, CO, 2016.

⁴² *2016 Community Health Needs Assessment: Porter Adventist Hospital*. Report. Porter Adventist Hospital, Centura Health. Denver, CO, 2016.

⁴³ *2016 Community Health Needs Assessment: Mercy Regional Medical Center*. Report. Mercy Regional Medical Center, Centura Health. Denver, CO, 2016.

Another key accomplishment of the CHNA was the enhanced focus on the social determinants of health as a legitimate policy entry point for the purpose of the CHNA implementation plans. The prioritized indicators were clinical issues, not social ones, and none of the hospitals explicitly identified a social determinant of health such as food security, housing security, unemployment, and so forth, as an area of focus. The most prioritized needs across the Centura Health system include Obesity/Overweight/Nutrition and Mental Health. However, because of the organizational collaboration, many of the implementation plans to address the prioritized needs included interventions for particular social determinants of health. Additionally, policy entry points to tackle vulnerability and risk mechanisms are relatively low-cost to the health system and can be easily subsidized by grant funding, so are considered a more financially viable intervention than continuing to pour resources into clinical interventions. Porter Adventist Hospital, for example built community gardens to increase access to healthy vegetables in their community to address their priority area of Obesity/Nutrition.⁴⁴ In addition, St. Mary-Corwin Medical Center in Pueblo County developed a food prescription program to address Obesity/Diabetes.⁴⁵ Thus, the CHNA gave hospitals the roadmap for how to build their capacity to address certain social determinants of health (particularly food insecurity) and gave them a reason to do so. The next section will provide a deep-dive into one Centura hospital's CHNA and subsequent implementation plan.

⁴⁴ *Porter Adventist Hospital Community Health Implementation Plan FY2017-2019*. 2016. <https://www.centura.org/sites/default/files/inline-files/Porter-Adventist-Hospital-CHIP-2017.pdf>, Denver.

⁴⁵ *St. Mary-Corwin Medical Center Community Health Implementation Plan FY2017-2019*. 2016. <https://www.centura.org/sites/default/files/inline-files/St-Mary-Corwin-Medical-Center-CHIP-2017.pdf>, Denver.

Case Study: St. Mary-Corwin CHNA and the Food as Medicine Program

St. Mary-Corwin Hospital CHNA

St. Mary-Corwin Hospital (SMC) is one of Centura's Colorado hospitals located in Pueblo. SMC is a level III Trauma Center and specializes in trauma care, cancer care, and orthopedic services.⁴⁶ SMC also sponsors the Southern Colorado Family Medicine (SCFM) residency clinic to provide primary care to Medicaid and uninsured patients. SMC published their CHNA in 2016 in compliance with the ACA requirement. They are currently conducting the most recent assessment, scheduled for publication in June of 2019.

Again, SMC did not already have staff on hand explicitly for the purpose to conduct a CHNA, nor did they have the financial resources to hire additional staff for that purpose. Therefore, they leveraged existing staff and tasked Linda Stetter, Director of Spiritual Care, to lead the CHNA process and to build the local partnerships needed to meet the CHNA requirement. Unlike others who were hired into Centura Health for the CHNA, Ms. Stetter did not have explicit background in public health. However, she was known in the community and had well-established relationships with community partners, having been a lifelong resident of Pueblo and an active member of the Pueblo community. Thus, she was well positioned to lead the CHNA process for SMC.

Ms. Stetter convened a CHNA subcommittee to include representatives from the Pueblo City-County Public Health Department and other community agencies. The subcommittee evaluated the quantitative and qualitative data to prioritize health needs based on how pressing they were and how effectively the hospital and community could

⁴⁶ "St. Mary-Corwin Medical Center." St. Mary-Corwin Medical Center | About Us. Accessed February 17, 2019. <https://www.centura.org/locations/st-mary-corwin-medical-center>.

address them. The quantitative data included publicly available information in areas such as healthcare access, demographics, and environmental indicators including availability of healthy foods. During this quantitative data collection, SMC found that over 81.5% of the population in their service area ate less than the recommended 5 fruits and vegetables daily, and over 17% of the low income population reported low food access.⁴⁷ In addition, over 60% of the population was either overweight or obese, and 8.1% of the population had diabetes.⁴⁸ In the qualitative data collection, the subcommittee convened a focus group to solicit input from the community. The focus group included the local public health department, schools, local law enforcement, and local students, inmates, and parents. Members of the focus groups expressed concerns with medical costs, eating and obesity, and weight maintenance.⁴⁹

After this data collection process, the SMC CHNA subcommittee prioritized the greatest health needs using an adaptation from the Hanlon Method for Prioritizing Health Problems. Members individually rated each identified health need against the size of the problem, the seriousness of the problem, and how much the need aligned with Centura Health and the community's existing efforts. Based on the criteria rankings assigned to each health need, the subcommittee calculated priority scores using the formula: $D=C(A + (2B))$, where:

⁴⁷ *St. Mary-Corwin 2016 Community Health Needs Assessment*. Report. St Mary-Corwin Hospital, Centura Health. Pueblo, CO, 2016. 37.

⁴⁸ *Ibid*, 38.

⁴⁹ *Ibid*, 21.

- D = Priority Score
- A = Size of health need ranking
- B = Seriousness of health need ranking
- C = Alignment ranking

In the end, SMC prioritized the following three health needs:

- Wellness: Obesity and Diabetes,
- Behavioral Health, including Access to Care and Insurance, and
- Chronic Lung/Respiratory and Related Cardiovascular Disease.

Implementation Plan for Obesity and Diabetes: The Food as Medicine Program

As mentioned earlier, a key accomplishment of the CHNA was the introduction of social determinant of health interventions as legitimate policy entry points to address clinical issues. SMC published their FY17-19 Community Health Implementation Plan as an overarching 3-year strategy to address their prioritized needs. The quantitative and qualitative data collection process had highlighted that one of the greatest concerns in the community was the availability of health foods. It became clear that the hospital had an opportunity to fill that gap for their community members to help improve their health outcomes. A key component of the SMC implementation plan to address Obesity and Diabetes was to expand access to healthy food through a Food as Medicine program embedded in the Southern Colorado Family Medicine (SCFM) clinic.⁵⁰ This program is a

⁵⁰ *Community Health Implementation Plan: FY17-19*. Report. St Mary-Corwin Hospital, Centura Health. Pueblo, CO, 2017.

pilot program in the Centura Health system designed to determine viability to expand it to more sites across Colorado or Western Kansas.

The Food as Medicine program at SCFM was a direct result of the CHNA. The program allows physicians and residents to write a prescription for fresh fruits and vegetables, and patients fill those prescriptions at an on-site food pantry once per week. Local farmers contribute to the food pantry to ensure that there is always fresh, locally grown produce available. Social workers at the clinic and hospital screen patients for food insecurity during the intake process using a two-question screening tool:

Within the past 12 months, we worried whether our food would run out before we got money to buy more.	<input type="checkbox"/> Yes <input type="checkbox"/> No
Within the past 12 months, the food we bought just didn't last and we didn't have money to get more.	<input type="checkbox"/> Yes <input type="checkbox"/> No

If the patient answers “Yes” to one or both questions, the social worker alerts the patient's primary care provider at SCFM. That provider schedules an appointment for the patient to conduct a thorough health assessment to determine specific health and nutritional needs. Particularly if the patient has a hypertensive, pre-diabetic/diabetic, or overweight/obese diagnosis, their provider writes a prescription for healthy food.

The food pantry at SCFM is provided in partnership with local farmers. As such, the pantry operates annually during the harvest season over 19 weeks of the year from the end of June through September, and the first season of operation was in 2017. This timeframe also coincides with summer break at school, when kids are most likely to experience food insecurity. Patients with food prescriptions can come to the food pantry once per week and have a bag of fresh fruits and vegetables specifically prepared for them by a nutritionist. Each food prescription fill provides at least 21 servings of fresh fruits and vegetables at a

total cost of \$3 per prescription to the patient. The pantry also accepts SNAP benefits thereby reducing cost barriers to access the program.

The Food as Medicine Program at SCFM was a new concept in Colorado; however, it borrowed much of the idea from Boston Medical Center's (BMC) Food Pantry program. The BMC program was the first innovation by a healthcare provider to address the key social determinant of health of food insecurity in 2001. In this program, physicians write a prescription for healthy food, which patients fill at an on-site food pantry stocked via donations. The food pantry at BMC currently serves over 7,000 people per month.⁵¹

The Southern Colorado Family Medicine (SCFM) clinic was an optimal location within Centura Health to pilot a program to mirror the BMC model. 67% of the patient population at SCFM is Medicaid, and many of those patients face significant social challenges, including food insecurity. The CHNA process also uncovered that many providers at the clinic had noticed that their patients had trouble adhering to their care plan because they didn't have access to healthy food. Pueblo is also rural community with nearby farmers who could serve as valuable partners to pilot such a program.

The Food as Medicine program was a significant step for the health system to pilot an intervention specifically targeted at a social determinant of health with a goal of improving a clinical outcome. It was a conscious effort, justified by Medicaid expansion and the CHNA, to shift away from the biomedical paradigm to find new ways to deliver care. Also, it was a step beyond some other interventions at SCFM where the provider's role was to refer the patient to other organizations when they noticed a significant challenge

⁵¹ "Preventive Food Pantry." Boston Medical Center. August 08, 2018. Accessed February 17, 2019. <https://www.bmc.org/nourishing-our-community/preventive-food-pantry>.

related to the patient's social position. The Food as Medicine program gave the providers a direct role to play to alleviate a risk factor like food insecurity.

The program demonstrates how providers can in fact shift their role to not only alleviate the differential consequences of ill health, but to also disrupt some of the earlier, more impactful, risk and vulnerability mechanisms. The question, though, is whether the regulatory changes such as Medicaid expansion and the CHNA requirement will be sufficient to justify continuing this program or even expanding it to other clinics.

Demonstrating Efficacy

As we have explored, providers have reason to expand their role to disrupt the earlier risk and vulnerability mechanisms for two reasons: 1) because they are now required to if they want to remain a tax-free entity, and 2) because it could help them decrease their marginal cost of care and improve outcomes for their most costly yet least profitable patient population. The Food as Medicine program definitely checks the box to fulfill the regulatory requirement, but for the health system to continue or expand the program, it is also crucial to be able to demonstrate efficacy in either lowering costs or improving health outcomes.

Unfortunately, it has proven very difficult for the Food as Medicine program to demonstrate either. Part of that was because of a program design issue. When SCFM and SMC initially began the Food as Medicine program as part of their implementation strategy to address Obesity/Diabetes, their original goal was to simply “increase access to healthy fruits and vegetables” as measured by the number of food prescriptions written and

subsequently filled. This is a great measure to understand utilization of the program, but not effective to understand outcomes.

The clinic did not have a robust system to track food prescriptions in the Electronic Health Record (EHR). Providers would write a physical prescription, but the prescription itself would not be recorded into the EHR unless the patient came back to fill it, at which time the prescription would be scanned in as a PDF. In 2017, 65 unique patients came back to fill their prescriptions but it is unknown exactly how many were initially written.⁵² The lack of a robust tracking system for food prescriptions demonstrates that this program was taken less seriously than more traditional clinical interventions, where a pharmaceutical prescription would undoubtedly be recorded in the EHR.

Additionally, as patients go through the program, they are supposed to receive three different physical exams to track blood pressure and weight in an attempt to measure outcomes. However, that information is collected inconsistently. Of the 65 patients who filled their food prescriptions every week, only 8 had their blood pressure and weight recorded every time they came back. Plus, when this information was collected, it was recorded on paper charts that are then scanned, rather than entered, into the medical record, making it difficult to automate the data collection and to trend over time. Staffing challenges and high turnover rates at the residency clinic have made it difficult to devote the time and resources to improve these processes to better measure the program. Additionally, there has been physician support to implement a more robust measure by

⁵² SCFM Food Stand Data. August 2018. Raw data. Southern Colorado Family Medicine, Pueblo.

looking analyzing a1C labs throughout the program. However, that is a request that requires additional funding that the hospital has not agreed to support.

According to an interview with the program's current manager, Cindy Lau, the main challenge for the Food as Medicine program is that hospital's executives view the program as "optional" or a "nice-to-have". Therefore, whenever there is a financial strain on the system, the Food as Medicine program is one of the first programs to be considered for elimination as a quick cost-cutting measure. "As far as executive support, I would say there is very little."⁵³ Unless the program finds a way to explicitly improve outcomes or lower costs, it is unlikely that it will be safe from this dynamic in the future. If the Food as Medicine program is to continue, it is essential that the program can tie back to outcomes, or at very minimum can keep costs low.

The fact that the Food as Medicine program is generally seen as a "nice to have" illustrates how the paradigm shift in healthcare is still slowly progressing. Providers still see their role as primarily to decrease the differential consequences of ill health by curing illness when it occurs. Though there have been numerous policies and reforms enacted to get providers to broaden their scope to intervene in the social mechanisms that impact health, it may not have been enough to convince hospital executives and providers themselves to develop robust social interventions, especially when faced with economic challenges.

⁵³ Lau, Cindy. "Interview with Cindy Lau, Program Coordinator SCFM." Telephone interview by author. June 14, 2018.

Moving Forward: Policy Recommendations

The case study looking at SMC's CHNA and resulting Food as Medicine program demonstrates that the policy changes at the national level did help to get providers to re-examine the ways they can impact certain social determinants of health. Unfortunately, those policy changes haven't been enough to complete the paradigm shift so that providers view those social interventions as equally as important as their clinical interventions. However, there are additional policies that could continue to push this paradigm shift.

Funding Mechanisms

Moving forward, the best ways to push the paradigm shift for hospital systems into the social determinants of health will involve financial incentives. The perhaps most obvious intervention would be for government insurers to reimburse providers who directly intervene in prioritized social determinants of health, including food insecurity. There are discussions underway for CMS to do just that. In late 2018, Health and Human Services Secretary Alex Azar announced the CMS is developing a pilot model that would allow healthcare organizations to bill Medicaid and Medicare for providing services such as assistance with food and housing.⁵⁴ If successful, this would be a complete game-changer to push providers to think about the whole continuum of a person's life when developing their care plans. It would drastically move the healthcare system's role from the final mechanism that influences health (the consequences of ill health) towards direct interventions at the earlier risk exposure and vulnerability mechanisms, and providers will

⁵⁴ Castellucci, Maria. "Prospect of CMS Paying for Housing Attracts Attention, Advice and Questions." Modern Healthcare. November 26, 2018. Accessed February 17, 2019. <https://www.modernhealthcare.com/article/20181124/NEWS/181129980>.

be much more likely to engage in those interventions when there is a revenue opportunity for doing so. If this goes through, it will be the most significant reform that pushes providers to address social determinants of health because it moves the incentive measure to an income-producing measure rather than as a risk or cost avoidance measure.

Absent the policy recommendation to reimburse providers for services, another key policy is through federal or local grant funding to provide financial support to providers who want to intervene in certain social determinants of health, but lack the ground funding to do so. The Robert Wood Johnson Foundation (RWJF) does much of this work and it has contributed to providers going out on a limb to develop programs to impact the social determinants of health without having to take on significant financial risk up-front to do so. For example, in 2016, RWJF partnered with Catholic Health Initiatives to implement a pilot program called the Total Health Roadmap to meet patients' basic needs, such as access to food, safe housing, and transportation. Patients visiting primary care offices are asked questions relating to their basic needs, then community health workers can help link patients to appropriate community resources.⁵⁵

Regulations

Another key policy recommendation is to keep the scrutiny on non-profit hospital systems to dedicate more community benefit towards programs that impact the community, rather than towards unreimbursed costs. There could be a mandated percentage of Community Benefit spending that had to be dedicated to enhancing public health (say,

⁵⁵ Taylor, Betsy. "CHI, Robert Wood Johnson Foundation Map Road to Health." Catholic Health Association of the United States. Accessed February 24, 2019. <https://www.chausa.org/publications/catholic-health-world/article/october-15-2017/chi-robert-wood-johnson-foundation-map-road-to-health>.

30%), or the government could put a cap on the amount of unreimbursed care that hospitals could claim as a Community Benefit. This could have the dual effect to force non-profit hospitals cut their own overhead costs to fill that gap, resulting in more administrative efficiencies. It would also keep the pressure on them to develop robust organizational capacity to conduct community health needs assessments and implementation plans to address key social determinants of health, instead of doing the minimum necessary to “check the box” to keep their non-profit status.

Academic Medicine

A final, critical change that will continue the paradigm shift for providers is for academic medical centers to incorporate social determinant of health training into their clinical curriculums. Providers have been taught the biomedical paradigm for generations, and it will take time to shift that culture. However, medical schools are in a prime position to train the next generations of physicians to take their patient’s social circumstances into account when developing treatment plans, and to equip them with the extra tools to address those concerns along with their clinical concerns.

CONCLUSION

As we explored in prior chapters, the healthcare system in the United States is by far the most costly yet produces sub-optimal health outcomes in comparison to other industrialized countries. In response, policymakers have enacted a multitude of reforms to achieve the goals of the Triple Aim: improve patient experience, improve the health of the population, and reduce the per capita costs of care. The system is undergoing a paradigm shift from the biomedical model towards the social determinant of health model, and providers are working to re-define the role they can play in certain social determinants of health.

Centura Health's foray into the social determinant of health space as shown by their CHNA process and resulting Food as Medicine program signifies an important cultural shift from the biomedical model towards a new social determinants of health model. Pressure on the system to invest in community programs to justify their tax-exempt status has provided a real business case to identify policy entry points that can decrease marginal costs and improve health outcomes. The Food as Medicine program is a great example of a health system's response to this changing paradigm as a way to reduce the risk and vulnerability mechanisms that Diderichsen et. Al (2001) laid out.

However, continuing the paradigm shift is going to require continuing political and financial pressure on health systems such as Centura. As was seen at SMC with the Food

as Medicine program these programs at the provider level are still viewed as supplementary to the core business of medicine, which is to cure, rather than prevent, disease. There are some additional policies and regulations that could continue this paradigm shift, including funding mechanisms, regulatory requirements for community benefit, and provider training. The healthcare system in the United States has been set on a trajectory to continue the paradigm shift towards value that will hopefully lead to a more effective health system overall.

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